**Before the**
**Federal Communications Commission**
**Washington, D.C. 20554**

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|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Implementation of Section 304 of the | ) | |
| Telecommunications Act of 1996 | ) | CS Docket No. 97-80 |
| | ) | |
| Commercial Availability of Navigation Devices | ) | |
| | ) | |
| Compatibility Between Cable Systems and | ) | PP Docket No. 00-67 |
| Consumer Electronics Equipment | ) | |

# COMMENTS


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February 13, 2004

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## SUMMARY

The *Plug-and-Play Order* took a critical first step toward making innovative, consumer-friendly digital cable products available to the public. But the undersigned members of the IT industry urge the Commission to take additional steps to ensure that those products include PCs and other open architecture devices (and related home networking technologies and devices) that are inciting consumers to embrace the transition to digital entertainment media. To encourage the deployment of diverse digital connections and technologies that in turn will promote the development of a vibrant market for digital cable devices, the Commission should adopt neutral, transparent and objective criteria and procedures for approving digital content protection technologies for use with Unidirectional Digital Cable Products. Objective criteria and a transparent process will give the IT industry the confidence it needs to develop these products

Specifically, IT Industry Commenters urge the Commission (1) to specify objective, functional criteria, as proposed herein, that will guide the development and approval of digital content protection technologies for use with Unidirectional Digital Cable Products; (2) to permit technology developers to self-certify that their technologies meet the functional criteria (or, in the alternative, to provide for approval of technologies meeting the functional criteria by the Commission or an independent third party accredited by the Commission); and (3) to provide guidance concerning the appropriate terms and conditions that should govern the licensing of approved technologies for use in Unidirectional Digital Cable Products. This approach will most effectively serve the Commission's goal of promoting the deployment of a wide variety of diverse technologies that will enhance consumers' digital entertainment experience.

IT Industry Commenters also recommend that the Commission adopt standards governing the revocation of approved technologies that limit such revocation to circumstances where the technology has been so significantly compromised that the risk of substantial harm to the overall market for the affected digital content outweighs the harm to consumers from revocation *and* all opportunities for remedying the security compromise have been considered and found infeasible. In addition, the Commission should make clear that revocation of a technology will never require the recall of equipment already in the market.

Finally, we encourage the Commission to afford greater flexibility in the development of digital cable products by (1) clarifying that the features required in products marketed as "digital cable ready" may be implemented in a variety of formats (including through multi-component systems) and (2) allowing manufacturers to develop modified test suites (which may be subject to Commission review and approval if necessary) to the extent that the test suite incorporated in the rules is inappropriate for a particular product or implementation. The Commission should also afford manufacturers flexibility in communicating with consumers about the capabilities and limitations of their products.

IT Industry Commenters are eager to make new and innovative digital media products, including products that receive cable-delivered content, available to consumers. These products should be allowed to participate fully in the market for Unidirectional Digital Cable Products without having to sacrifice the features and functionality that make them exciting and appealing to consumers. To make this possible, we encourage the Commission to adopt the measures set forth herein, which will provide content providers and cable operators assurance that their content will be protected while allowing consumers to take advantage of the diverse array of technologies and products the IT industry has to offer.

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## COMMENTS

The stated goal of this proceeding is to promote technological innovation and consumer choice in the market for Unidirectional Digital Cable Products. Microsoft Corporation ("Microsoft"), Hewlett-Packard Corporation ("HP"), Dell, Inc. ("Dell") and Apple Computer, Inc. ("Apple") (collectively, the "IT Industry Commenters") fully endorse this goal and submit these comments in response to the *Second Further Notice of Proposed Rulemaking* in the above-referenced proceeding (*Further Notice*) to suggest further steps the Commission can take to ensure consumers have access to a wide array of diverse digital cable ready devices.

The Commission's *Second Report and Order* adopting "plug-and-play" standards for Unidirectional Digital Cable Products ("*Plug-and-Play Order*") took a critical first step toward making new digital cable products available to consumers. But more is needed to ensure that those products include personal computers (PCs) and other open architecture devices (and related home networking technologies and devices) that offer exciting opportunities to enhance the consumer entertainment experience today. IT Industry Commenters encourage the Commission now to take the next step and adopt additional rules and procedures that will promote technological innovation and interoperability by affording greater flexibility in the types

of digital connections and technologies that can be utilized in "digital cable ready" Unidirectional Digital Cable Products.[1]

## I. THE COMMISSION'S RULES SHOULD RECOGNIZE THAT PERSONAL COMPUTERS ALREADY HAVE BECOME FULLY-FUNCTIONAL HOME ENTERTAINMENT DEVICES.

As Microsoft and HP explained in their August 8, 2003 *ex parte* filing in this proceeding ("*MS-HP Ex Parte*"), the transition of entertainment media to digital technology has led consumers increasingly to view the PC as a new engine for delivering entertainment in the home.[2] Digital cable services are widely available, broadcasters are transmitting digital television programming over-the-air and music and entertainment companies are offering digital music on CDs and in various digital file formats including AAC, MP3 and WMA. At the same time, consumers are accelerating the PC's move from a business and home management tool in the home office to an entertainment center in the living room and kitchen. Consumers are using their PCs to listen to music, to organize and enjoy digital photographs, and to watch DVDs and other video programming including broadcast television and movies streamed over the Internet.[3]

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[1] IT Industry Commenters' support for broad, consensus-based industry standards in this limited context should not be construed as signifying more general support for legislative mandates governing industry conduct. We do not support legislative mandates and believe that regulations should be adopted only when absolutely necessary, should be based where possible on consensus-based industry solutions and should be narrowly tailored to address the specific problem at issue. Indeed, the products and innovations of IT Industry Commenters, only a few of which are described herein, demonstrate that unfettered innovation, refined in the marketplace, is the only way to find solutions that satisfy the needs and tastes of the consumer, content owners and manufacturers. Ideal regulatory structures and procedures enhance this process by respecting the results of innovation and intervening only when a particular solution leads to abuse that is not corrected in a timely fashion by market forces.

[2] *See Ex Parte* Letter from Microsoft Corp. and Hewlett-Packard Corp. to Marlene Dortch, Secretary, FCC, CS Docket No. 97-80, PP Docket No. 00-67, at 2-3 (Aug. 8, 2003) (*MS-HP Ex Parte*).

[3] Surveys indicate that consumers would like to make even greater use of their PCs as home entertainment devices. *Id.* For example, one 2003 survey showed that 57% of PC owners surveyed intended to have all of their photos in digital format over the next year, 33% wanted to

(continued…)

Consumers are also eagerly adopting technologies (including WiFi, Bluetooth, USB, and Internet Protocol) that enable home networking and further facilitate the consumption of digital media in the home. And through these uses and technologies, consumers are realizing greater value from all their digital devices and purchased media and services.

Building on these trends, PC manufacturers are developing PCs and other open architecture devices specifically designed to optimize the digital entertainment experience.[4] For example, PC manufacturers recently released the second version of the Media Center PC, powered by the Windows XP Media Center Edition 2004 operating system. Media Center PCs are specially designed to serve as both a computer and a home entertainment hub. They include mid- to high-end processors, plentiful memory, high-capacity hard disks, CD-ROM/DVD drives, advanced graphic and audio capabilities, networking connectivity, and a remote control used to access the full range of the PC's entertainment resources – including digital video and photos, DVDs, downloaded movies and music, and other content delivered to the PC via broadcast, cable and satellite, typically through a set-top box. As broadcasters and other content providers continue to embrace the benefits of digital distribution, the expectation is that commercial content from a wide array of sources will be accessible not only from a monitor or television wired to the Media Center PC, but via a secure wireless network (including content protection

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spend more time managing and editing digital pictures on their PCs and 32% wanted to spend more time burning CDs on their PCs.

[4] A number of factors are contributing to this evolution of the IT industry. For example, "[t]he emphasis today is on digital media, including DVD movies, downloaded music, and digital photos, and by extension the smart, connected devices that manipulate and move those files around the house. Smart, connected devices are genetically closer to computers than to traditional consumer electronics products." Peter Lewis, "Gadget Wars: Who Will Own Your Living Room?," *Fortune*, Jan. 27, 2004.

for analog broadcast signals) interconnecting the Media Center PC with televisions and X-Box gaming consoles throughout the home.

Similarly, Apple applications such as iLife, iTunes and iDVD – enabled by Apple's "Digital Hub" concept using the computational and I/O power of the modern Macintosh and OSX operating system to give the ordinary user capabilities previously available only to high-end audio and video professionals – make it intuitive and convenient for the average user to integrate their personal video and photo assets with their home entertainment devices. Apple's iPod arguably represents one of the most successful innovations to date in the area of legitimate distribution of music to personal playback devices.

In fact, because of the decreasing cost of memory, hard disk storage space and processing power, many consumer electronics (CE) manufacturers are developing television enhancement products and services, such as Personal Video Recorders (PVRs) and other devices, that have open platforms similar to PCs. These converging products – PCs designed to serve a home entertainment function and consumer devices incorporating hard drives and open product architectures typically associated with PCs – are improving consumers' entertainment choices and experience, introducing new levels of vigorous competition and promoting economic growth.[5]

These devices and related technologies (WiFi, Bluetooth, USB, Internet Protocol, and PCs) that form home networks and allow consumers to optimize the digital entertainment experience are inciting consumers to embrace the digital transition. If allowed to develop and

[5] These types of open platform devices will also, in the long term, play a critical role in the success of bi-directional products and services. Open platform devices also facilitate the emergence of a broad range of component suppliers, promoting job growth and stimulating economic expansion.

deploy to their full potential, these devices and technologies could also finally drive the large-scale deployment of competitive navigation devices that the Commission has been seeking to achieve since 1997. But if these products and technologies are to realize their full potential, they must be able to access a broad range of content distribution mechanisms and systems. This includes the capability to connect seamlessly with digital cable systems without the explicit requirement of a set-top box carrying an additional fee for the consumer and increasing the complexity of system set-up.

The rules adopted in the *Plug-and-Play Order* take an important first step toward making new digital cable products available to consumers. But, as the Commission appeared to recognize, the current rules may not go far enough to ensure that PCs and related devices, services and technologies will be full participants in the emerging market for competitive digital cable devices.[6] To remedy this deficiency and promote a truly vibrant and competitive market for digital cable devices, the Commission should consider adopting additional rules and procedures to afford greater flexibility in the types of digital connections and technologies approved for use in unidirectional "digital cable ready" products.

## II. THE COMMISSION SHOULD ADOPT NEUTRAL, TRANSPARENT AND OBJECTIVE CRITERIA AND PROCEDURES FOR APPROVING DIGITAL OUTPUTS AND CONTENT PROTECTION TECHNOLOGIES FOR USE WITH UNIDIRECTIONAL DIGITAL CABLE PRODUCTS.

Under the industry plug-and-play proposal and the interim procedure adopted in the *Plug-and-Play Order*, CableLabs, the cable industry research consortium, exercises primary control over decisions approving or disapproving output and content protection technologies for

[6] *See Further Notice* ¶ 83 ("[W]e are concerned that [the process for considering and approving] outputs and associated content protection technologies to be used in unidirectional digital cable products could affect innovation, and interoperability.").

use with Unidirectional Digital Cable Products, subject to Commission review upon request. As the Commission noted, this approach assigns responsibility for determining the technologies that will be made available to consumers to an entity that is controlled by a single industry and is historically not an inter-industry, standard-setting body.[7] As described more fully below, granting this right of first decision to a representative of just one of the affected industries – which can certainly be expected to put its founders' interests first[8] – ultimately could stifle technological innovation and put at risk the open and flexible architecture of the PC and similar devices.

The *Further Notice* seeks comment on (1) whether the Commission should adopt standards and procedures for the approval of connectors and content protection technologies for use with Unidirectional Digital Cable Products; (2) what, if any, objective criteria should be used to evaluate proposed connectors and technologies; and (3) who is the appropriate entity to make approval determinations.[9] We support the adoption of rules and procedures that specify objective, functional criteria – applied pursuant to neutral, transparent procedures (including self-certification) – to evaluate digital connectors and content protection technologies for use with Unidirectional Digital Cable Products.

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[7] *Further Notice* ¶ 83.

[8] "Founded in 1988 by members of the cable television industry, Cable Television Laboratories, Inc. (CableLabs®) is a non-profit research and development consortium that is dedicated to pursuing new cable telecommunications technologies and to helping its cable operator members integrate those technical advancements into their business objectives." "About CableLabs," available at http://www.cablelabs.org/about/ (last visited Feb. 9, 2004).

[9] *Further Notice* ¶¶ 83-85.

### A. Content Protection Technologies Satisfying Specified Objective, Functional Criteria Should Be Approved for Use with Unidirectional Digital Cable Products.

In refining the plug-and-play rules, the Commission should specify objective, functional criteria that, if satisfied and offered with appropriate terms and conditions of use (as described below), will result in a digital output or content protection technology's being approved for use with Unidirectional Digital Cable Products. The approval procedure adopted in the *Plug-and-Play Order*, while acceptable as an interim approach, will not over the long term promote the kind of technological development that will assure consumers of the availability of a diverse array of technologies and functionalities for the enjoyment of digital content throughout the home. By contrast, the approach we propose here will provide necessary guidance to designers and manufacturers of current and next generation digital entertainment devices regarding the goals and objectives their technologies should be designed to satisfy in order to protect digital cable content. But it will not dictate or preordain – or grant any single industry undue control over – the methods, processes and approaches that may be used to accomplish those goals. The concrete guidance of this approach will promote innovation while the objective criteria ensure competitive neutrality. Without objective functional criteria, on the other hand, innovators would have less incentive to develop new technologies (because of uncertainty as to whether they will be approved for use) and technology could be frozen at the current state.

We propose the objective functional criteria set forth below, which build on both the *MS-HP Ex Parte* and the Dell *ex parte* filing of October 24, 2003 in the Commission's Broadcast Flag proceeding.[10] These criteria are designed to accommodate a broad range of

[10] *See MS-HP Ex Parte* at 6-9; *Ex Parte* Letter from Dell Corp. to Marlene Dortch, Secretary, FCC, MB Docket No. 02-230, Attachment (Oct. 24, 2003). Although there rightfully are similarities between the functional criteria proposed here and those proposed by the IT Coalition (continued…)

approaches and technologies without sanctioning any particular technology or in any way prejudging the means by which the criteria are satisfied. Implementation will be determined by the innovator. The criteria can be codified in a new Part 76 rule section specifying that any output or content protection technology meeting the following criteria may be used with Unidirectional Digital Cable Products:

- Scope: The content protection method must prevent the unauthorized use or redistribution (*i.e.*, use or distribution that is inconsistent with the specified usage rights) of Controlled Content delivered over digital cable systems.

- Security: A content protection method must protect Controlled Content, in conformance with the applicable Compliance Rules, when such content is transmitted among or recorded by a variety of consumer devices, including but not limited to single and multi-function devices such as TVs, set-top boxes, game consoles and personal video recorders as well as general purpose devices such as PCs. A content protection method may be implemented in software or hardware or in any combination of the two. In conformance with the applicable Robustness Rules, defeating the content protection method should be beyond the capability of the ordinary user using commonly available tools.

- Strength/Robustness: All cryptographic algorithms, cryptosystems, keys and secrets shall be of sufficient strength to render breach or compromise of content beyond the capability of an ordinary user using commonly available tools, while meeting applicable export control laws. The encryption algorithm should, in accordance with common and well-regarded security practices, be published and subject to peer review. The algorithm must be such that detailed knowledge of a given implementation of the algorithm shall not, in and of itself, be sufficient to enable the production of circumvention devices. The Robustness Rules should require appropriate robust protection of content traversing a user accessible bus (including but not limited to graphics buses, memory buses, CPU buses and other buses that are part of the device's internal architecture).

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(continued…)
for approval of digital output and recording technologies for use with the Broadcast Flag, *see* Comments of the IT Coalition, MB Docket No. 02-230 (Feb. 13, 2004), we agree with the IT Coalition that the regulatory regimes governing review and approval of technologies for use with over-the-air DTVs and digital cable devices should not be conflated. Although the technologies that will protect against unauthorized output and recording of both cable content and digital broadcast content will share similar features and functionalities, the broader scope, greater complexity and different context of this proceeding require the adoption of separate mechanisms for evaluating and approving technologies for each use.

- Rights/Interoperability: The content protection method must ensure that usage rights equal to (or no more permissive than) those delivered with the content are preserved when the content is output to another device, including a device employing a different content protection system.[11]

- Authentication: The authentication method must ensure that Controlled Content is output to or accessible by another device (including software) only if that device is compliant. This may be accomplished using *implicit* authentication, such as use of encryption keys that are known only by compliant devices, or using *explicit* authentication, such as confirming the target device's ability to protect the Controlled Content consistent with the functional criteria prior to outputting the Controlled Content to the device. The content protection method must securely manage the communication and distribution of any cryptographic keys or methods necessary for decrypting the Controlled Content, using specific means to restrict such communication and distribution.

- Compromise Recovery: It must be technologically possible to revoke and/or renew – through either software or hardware or any combination – the ability of an individual device to receive Controlled Content if the device has been compromised, including where the device is masquerading as a device that is compliant. The technical ability to renew or modify the content protection method to remedy security compromises could be employed to obviate the need for revocation. The revocation process must be governed by appropriate rules, procedures, and safeguards (as described in Part III below).

These functional criteria are clear enough to allow manufacturers to develop and submit technologies for approval and broad enough to encompass emerging and innovative technologies. Together with appropriate terms and conditions for the use of the technology in devices, any technology satisfying these functional criteria should protect content owners from unauthorized redistribution of protected content while allowing consumers to enjoy the content they purchase from digital cable operators.

[11] One way to promote interoperability would be to encourage technology developers to employ the MPEG-21 part 5 standard, or a successor widely-adopted international rights expression standard, to mark content.

### B. Digital Outputs And Content Protection Technologies Should Be Self-Certified or Evaluated By An Independent, Objective Entity Using Transparent Processes and Procedures

In addition to specifying objective, functional criteria for digital output and content protection technologies, the Commission should permit technology developers to self-certify that their technologies comply with the criteria or should require that new technologies are evaluated for compliance with the objective criteria by an independent, objective entity that employs widely publicized, transparent processes and procedures. This is the approach followed under the Commission's rules for other regulated industries and devices, including Part 68 telecommunications devices and Part 15 wireless devices.[12]

The interim procedure adopted in the *Plug-and-Play Order* falls short of this standard because it places CableLabs in the difficult position of evaluating a wide range of technologies, products and innovative new solutions from other industries. As noted in the *MS-HP Ex Parte*, although CableLabs can and does perform important functions for the promotion of the cable industry, consumers and competitors cannot be expected to rely on one industry (as opposed to the independent entities that traditionally serve this function) to make decisions that will have the effect of determining the competitive products and technologies that will be available to consumers across a range of industries. Indeed, CableLabs may very well lack the expertise to evaluate technologies from outside its core industry, such as software-only solutions.

[12] *See, e.g.*, 47 C.F.R. §§ 2.902, 2.906, 2.960, 2.962; § 68.324 (2002). The Commission's rules generally allow "unintentional radiators" to be self-certified (pursuant to a verification or Declaration of Conformity) as compliant with applicable technical standards, while intentional radiators are subject to testing and certification by the Commission. Telephone terminal equipment may be self-certified (pursuant to a Supplier's Declaration of Conformity) or tested and certified as compliant with Part 68 of the Commission's rules by an independent Telecommunications Certification Body (TCB) accredited by the National Institute of Standards and Technology (NIST) and approved by the Commission.

CableLabs should not be expected to take on a new cross-industry standards-certification role beyond its current role of promoting its patron industry.[13]

This is particularly important where the technology at issue will be used in multi-purpose devices such as PCs that perform numerous other valuable functions unrelated to the display or distribution of cable content. PC owners should not have to sacrifice (or lose some of the efficiency of) those functions merely because their PC is capable of receiving content over cable, nor should technologies developed for PCs be excluded from use in digital cable devices solely because the PCs perform additional functions. Yet the risk that the PC and PC technologies will suffer this fate is exacerbated where the responsibility for evaluating and appraising technologies is assigned to an entity with a singular focus on the relatively narrow expertise and business interests of the cable industry.

To remedy these concerns, the IT Industry Commenters ask the Commission to adopt a final procedure for approving output and recording technologies that permits PC and device manufacturers to self-certify that an output or content protection technology satisfies the objective criteria *or* that entrusts such certification to an independent entity (which may be either the Commission or one of any number of independent bodies accredited by the Commission pursuant to established procedures). Where the functional criteria that a digital content protection technology must satisfy are clearly delineated, self-certification by the technology developer is appropriate and will most effectively facilitate the development and deployment of a

[13] By way of illustration, the underlying purpose of CableLabs' CableModem certification program is not the consumer-oriented goal of promoting a vibrant, competitive market for cable modems, but the cable-oriented goal of developing specifications that will "enable compatible products to be sourced from multiple vendors in a timely fashion, thereby, unlocking the revenue potential of the [high-speed cable Internet] service." Cable Modem/DOCSIS® FAQ, available at http://www.cablemodem.com/faq/ (last visited Feb. 10, 2004).

diverse array of digital content protection technologies without threatening the security of digital content distributed over cable.[14]

Any required documentation of a technology developer's self-certification should either be maintained by the certifying party or submitted to the Commission (rather than to CableLabs). If deemed necessary, the Commission could afford interested parties an opportunity to appeal a self-certification or independent decision approving a content protection technology to the Commission on the ground that the certifying or approving entity failed properly to apply the objective criteria or that the technology in fact is ineffective in protecting Controlled Content from unauthorized use or distribution. However, to prevent such appeals from delaying the deployment of qualified technologies in the market, the appeal procedure should set strict deadlines for resolving appeals pursuant to clearly defined procedures (such as binding arbitration or "rocket docket" procedures) that are designed to yield timely discovery and decision.

### C. Approved Digital Content Protection Technologies Should be Subject to Fair and Reasonable Terms and Conditions of Use.

As an increasing number of technologies become available for use with Unidirectional Digital Cable Products, it may be useful for the Commission to provide some guidance concerning the appropriate terms and conditions that should govern the use of those technologies. For example, the Commission could specify that:

- Licenses for approved technologies shall be made available on a reasonable, non-discriminatory basis pursuant to terms and conditions that are fully disclosed to potential licensees[15];

[14] In an age of growing cross-industry consolidation, the availability of a self-certification option is particularly critical to ensuring that as many technologies as possible are made available to consumers.

- Licensed elements shall be limited to such specifically identified patents or other proprietary rights as are "essential" to implement the technology in accordance with the applicable compliance rules (and all claimed patents and pending patents shall be fully disclosed to potential licensees before the license is signed) and any patent nonassert or grantback provisions shall be reasonable in scope;

- Licenses shall include reasonable limits on third party enforcement;

- Robustness requirements shall to be reasonable and designed to circumvent attacks by ordinary users using widely available tools;

- Licensing arrangements shall include adequate means of protecting licensees' competitively sensitive confidential information from disclosure to or misuse by licensors, other licensees or third parties; and

- Manufacturer licensees shall have an opportunity to participate in any consideration of proposed modifications of the technology that could have an adverse effect on the licensees or their future and/or existing products and services.

## III. APPROVAL OF AN OUTPUT OR CONTENT PROTECTION TECHNOLOGY SHOULD NOT BE REVOKED BEFORE CONSIDERING ALL OPTIONS FOR REMEDYING THE SECURITY COMPROMISE AND BALANCING THE INTERESTS OF CONSUMERS AGAINST THOSE OF CONTENT OWNERS.

The *Further Notice* seeks comment on the standards and procedures for revoking approval of output and content protection technologies.[16] IT Industry Commenters recognize the need for a mechanism for revoking approval of a technology that has become so significantly compromised that it is no longer capable of protecting the security of Controlled Content. However, the Commission must take into account the interests of consumers when adopting the appropriate standards and procedures for such revocation. Consumers who purchase Unidirectional Digital Cable Products will expect them to remain operable for the customary life of the product, and any revocation that were to affect products already in the home or

(continued…)

[15] It might also be useful for the Commission to establish an appeal mechanism pursuant to which licensees could seek Commission review of whether particular license terms and conditions satisfy the non-discrimination requirement.

[16] *Further Notice* ¶ 86.

marketplace would significantly undermine consumer expectations, to the long-term detriment of the broader PC and consumer device markets. Therefore, IT Industry Commenters recommend that the Commission adopt revocation standards and procedures including the following elements:

- A decision to revoke the approval of a technology should be made only by the Commission or by an independent entity authorized by the Commission to approve output and content protection technologies.

- An approved output or content protection technology should be subject to revocation only where (1) the technology has been so significantly compromised that the risk of substantial harm to the overall market for affected digital content outweighs the likely effect on consumers of revoking the approval; and (2) all opportunities for remedying the security compromise, including, for example, through a remedy at the cable headend or through a software or firmware update from the equipment provider, have been considered and found infeasible.[17]

- Revocation of a technology should not require recall of existing equipment already in the marketplace. The Commission or independent entity making the decision to revoke the approval shall determine on a case-by-case basis, taking into account all relevant factors, whether existing inventories of products that have been manufactured to include the revoked technology may be sold after approval of the technology has been revoked.

These revocation standards and procedures should provide adequate protection to owners of Controlled Content while protecting consumer expectations and minimizing disruption in the market.

## IV. COMMISSION RULES, INCLUDING CERTIFICATION AND TESTING PROCEDURES, SHOULD ALLOW FOR ARCHITECTURAL FLEXIBILITY IN THE DEVELOPMENT OF UNIDIRECTIONAL DIGITAL CABLE PRODUCTS.

The plug-and-play rules may need to be modified in one additional respect to accomplish the Commission's goal of fostering the development and deployment of diverse Unidirectional Digital Cable Products taking a variety of forms and incorporating a broad array

[17] Where renewability is a feature in all approved technologies, an alternative remedy to revocation should be available in most circumstances.

of output and content protection technologies. Under the *Plug-and-Play Order*, a Unidirectional Digital Cable Product may not be labeled or marketed as "cable ready" or "cable compatible" unless it incorporates specified features and is certified as compliant with the Uni-Dir-PICS-I01-030903: "Uni-Directional Receiving Device: Conformance Checklist: PICS Proforma," 2003 (2003 Uni-Dir PICS Checklist), which is expressly incorporated into the Commission's rules. However, as manufacturers develop innovative digital cable products, the architecture or features of a product (or individual components thereof) may not always fit precisely within the description contained in the Commission's rules or the items set forth in the 2003 Uni-Dir PICS Checklist. This may be the case even though the complete device delivered to the consumer (whether in one or more components) offers all the functionality contemplated by the Commission's rules. If this rigidity in the rules is not corrected, innovation will be hampered and the consumer entertainment experience will never be able to move beyond the single-function consumer devices of today. To avoid this result, we suggest the following modifications.

*First*, the Commission should clarify that manufacturers have flexibility in implementing the features required under Section 15.123(b) of the rules as long as the product ultimately delivered to the consumer, whether in one or more components, contains all the functionality required by the rules.

*Second,* the Commission should modify Section 15.123(c) of the new rules to allow manufacturers simply to show compliance with the requirements of Section 15.123(b), as opposed to compliance with a specific, inflexible test suite incorporated into the rules. To the extent the Commission considers it necessary to approve test suites to be used in determining compliance with the requirements of Section 15.123(b), the Commission should consider

adopting a streamlined procedure through which manufacturers could submit proposed test suites to the Commission for expedited or presumptive approval.

These proposed changes would create a flexible framework that encourages more innovation in product design without undermining consumer expectations concerning the functionality of Unidirectional Digital Cable Products.

## V. THE MARKET SHOULD DETERMINE HOW MANUFACTURERS EDUCATE POTENTIAL CUSTOMERS ABOUT THE FUNCTIONALITIES AND FEATURES OF UNIDIRECTIONAL DIGITAL CABLE PRODUCTS.

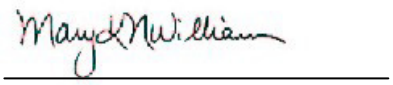
The *Further Notice* asks whether the Commission should require equipment manufacturers to provide consumers with pre-sale information about the functionalities of Unidirectional Digital Cable Products. While we agree that manufacturers should provide consumers with product information, it is not necessary for the Commission to impose specific requirements to that effect at this time. Manufacturers of Unidirectional Digital Cable Products will have every incentive to provide the consuming public, which is quite skeptical after years of delay in the deployment of these products, with as much information as possible about what consumers can and cannot expect from the products. Accordingly, the Commission need not dictate the content or means of communication between manufacturers and their potential customers or otherwise intervene in manufacturers' diverse and creative efforts to educate the public about their products.

## CONCLUSION

For the reasons stated herein, the Commission should supplement the rules adopted in the *Plug-and-Play Order* with additional rules and procedures that recognize the role of PCs in providing consumers entertainment in their daily lives. The rules and procedures proposed herein will encourage technological innovation by promoting greater flexibility in the types of "digital

cable ready" connections, technologies and devices that manufacturers can develop and consumers can enjoy.

Respectfully submitted,



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February 13, 2004